

OIS Curve



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- In the past, zero rate curve was used for both discounting cashflows and projecting forward rates.
- However, this classic viewpoint is too simplistic. It does not take into account the relative credit risk between lending and funding.
- Prior to the 2007 financial crisis, market practitioners considered the LIBOR curve as a proxy for the risk-free curve and used it for discounting cashflows.

OIS Curve (Cont.)

- After the financial crisis, market practitioners started to use a new valuation methodology referred to as dual curve discounting, overnight index swaps (OIS) discounting or CSA discounting.
- OIS curves became the market standard for discounting collateralized cashflows. This curve represents the market expectations of the Federal Reserve daily target for the overnight lending rate.

OIS Curve (Cont.)

- The reason often given for using the OIS rate as the discount rate is that it is derived from the fed funds rate and the fed funds rate is the interest rate usually paid on collateral.
- Fed funds rate and OIS rate are the relevant funding rates for collateralized transactions.
- Many banks now consider that OIS rates should be used for discounting when collateralized portfolios are valued.



OIS Curve Construction

- The most liquid instruments that can be used to build OIS curve are Fed Fund Futures and OIS swaps that pay at the daily compounded Fed Fund rate.
- However, Fed Fund Futures are currently only liquid up to two years and OIS swaps up to ten years.
- Beyond ten years, the most liquid instruments are Fed Fund versus 3M LIBOR basis swaps, which are liquid up to thirty years.



OIS Curve Construction (Cont.)

- In the past one could have generated the Libor curve separately, by using the single curve for both forward projection and discounting.
- Nowadays, swaps are quoted using OIS discounting. So neither the OIS curve nor the Libor curve can be built without the other. The two curves must be generated simultaneously.



OIS Curve Construction (Cont.)

- To reflect more accurate Mark-to-Market and hedging of Overnight Index Swap (OIS) products, we have proposed a way to build a curve that includes 'Central Bank Meetings'. A series of Central Bank Days (CB days) are inserted into the market data stream and the model calculates what Central Bank values (CB values) will be.
- The closing broker prices and calculated CB values are entered into Infinity to create more accurate curve for OIS products MtM.



Thank You

Reference:

<https://finpricing.com/lib/IrCurve.html>